UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/817,610	04/02/2004	Sabrina L. Murray	STL11366	2451

7590 02/05/2007

H. Sanders Gwin, Jr.
Shumaker & Sieffert, P.A.
8425 Seasons Parkway
Suite 105
St. Paul, MN 55125

EXAMINER	
CYGAN, MICHAEL T	
ART UNIT	PAPER NUMBER
2855	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/05/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/817,610	MURRAY ET AL.	
	Examiner	Art Unit	
	Michael Cygan	2855	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 December 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12,14-23,25 and 27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12,14-23,25 and 27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *02 April 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-12 and 25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1-12 and 25 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted elements are: the controller. The recitation of "determines a leak rate...by subtracting" is interpreted as a functional limitation of the apparatus (and not a mere intended use devoid of patentable weight). As a functional limitation in a claim directed to an apparatus, some claimed structure must exist for performing such function. Neither the flow meter, conduit, nor bleed orifice are disclosed to perform a calculation function. The calculation function is disclosed to be calculated by a controller; see page 10, lines 28-30 of applicant's specification. This controller, which appears as a limitation in claim 10, must appear in claim 1 in order to "particularly point out" applicant's invention. Furthermore, any further reference in later claims, such as claim 10, should recognize proper antecedent basis when identifying the controller.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claims 1, 2, 4-7, 10-12, 14-16, 18-20, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Docy (US 6,298,712) in view of Wickham (US 3,948,083). Docy teaches an apparatus and method for performing leak testing of an article with the apparatus, comprising pressurized air source [12], accumulator [16], flow meter [18], conduit (pipe from [36] to [26]), bleed orifice [22], regulator [14], valve [24], microprocessor controller [50] which compares the leak rate through test part and reference orifice to the leak rate only through the reference orifice to determine whether the test part has an acceptably low leak level (column 4 lines 60-67; Figure 3); the method further comprises use of the valve to divert flow to make the above described measurement, and comparison of the determined leak rate (ratio) to an acceptable value. Note that measurement of pressure of escaping gas over a specified time period is a measurement of the flow rate of the gas. See entire document, especially column 3 line 45 through column 5 line 10.

Docy teaches the claimed invention except for the use of a flow meter in the flow path of the flow of the pressurized fluid. Docy utilizes a pressure meter

having an opening in the flow path of the flow of the pressurized fluid; however, the claim language, as interpreted by the specification, requires that the flow pass through the flow meter (see applicant's specification page 7 lines 10-11 and page 8 line 19).

Wickham teaches the equivalence of in-line flow meters and pressure gauge/port meters for leak sensing of a test device [5] using a reference orifice [32] that may have undergone pre-testing calibration (measurement of the flow rate through that orifice); see abstract, column 3 lines 53-56, column 4 lines 26-31, and column 5 lines 19-20. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a flow meter as taught by Wickham in the invention taught by Docy to replace the pressure sensor, since Wickham teaches that the flow meter has advantageous application in the leak sensing art in place of a pressure sensor.

With respect to claims 11 and 19, the claims are taught except for the particular leak magnitude range. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the claimed range, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

2. Claims 8, 9, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Docy (US 6,298,712) in view of Wickham (US

3,948,083) as applied to claims 1 and 16, further in view of Lindeberg (US 3,818,752). Docy teaches the claimed invention except the use of two flow meters. Lindeberg teaches the use of two or more flow meters connected in parallel for use in a leak testing device; see column 2 lines 47-52. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use two or more flow meters connected in parallel as taught by Lindeberg in the invention taught by Docy, since Lindeberg teaches that such provides exact indication of the magnitude of any leakage (increased detection range); see column 2 lines 46-53. As Lindeberg teaches the use of flow meters based upon the desired flow rates to be sensed, it would have been obvious to use a flow meter having a mid-range point near that of a reference orifice leak, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

3. Claims 3 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Docy (US 6,298,712) in view of Wickham (US 3,948,083) as applied to claims 2 and 20, further in view of Ledeen (US 5,708,193). Docy teaches the claimed invention except for the use of a pressure regulator having a variable orifice size. Ledeen teaches the use of a pressure regulator having a variable orifice size for use in a leak test

system having an accumulator; see Figure 5 and column 7 lines 21-60. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a pressure regulator having a variable orifice size as taught by Ledeen in the invention taught by Docy to charge the accumulator, since Ledeen teaches such use as advantageous in properly and quickly charging an accumulator for pressure leak test systems.

4. Claims 23, 25, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Docy (US 6,298,712) in view of Wickham (US 3,948,083) as applied to claim 14, further in view of Macpherson (US 1005/0036232 A1). Docy teaches the claimed invention except for the use of a data storage device as the tested unit. Macpherson teaches the use of a data storage device as a test unit for a leak test, where the flow is connected to a "separate test port" during leak testing, and where the inside of the unit is sealed except for a filter unit during operation following leak testing (therefore requiring that the "separate test port" be sealed following leak testing); see paragraphs 0009-0011 and 0033. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a data storage device as taught by Macpherson in the invention taught by Docy to form the tested unit, since

Macpherson teaches the necessity of leak testing disc drives (paragraph 0033).

Response to Arguments

Applicant's arguments filed 20 December 2006 have been fully considered but they are moot in view of the new grounds of rejection.

5. With respect to the rejection based upon Docy in view of Wickham, applicant argues that placing a flow meter in a position formerly held by a pressure transducer would not result in a flow that, minus the bleed orifice flow, is "a" leak rate for the device. Wickham teaches the use of a flow meter that is placed relative to two orifices such that the meter subtracts the bleed orifice selected removal rate from the determined flow rate through the test device to provide a leak rate for the device. See, e.g., abstract and column 5 lines 1-20. The use of flow sensors as alternatives for pressure sensors in the measurement of leakage flow is disclosed by Wickham, and admitted to be known in the prior art from applicant's specification at page 1 lines 18-26.

6. With respect to the applicant's concerns over the range in the rejection based upon Docy (here, in view of Wickham) in view of Lindeberg, applicant's point that an artisan might not be motivated to choose a mid-range value is well taken; particularly in light of the application's claim of

advantageous results on page 9, lines 4-6. However, applicant's specification further mentions that some flow meters "have been found to be generally more accurate in the mid-range;" page 9, lines 6-8. This appears to indicate that one having ordinary skill would be familiar with the advantages of mid-range operation. Certainly, most persons of art would understand that operating a device within its operational range would be advisable, and that operation within the mid-range would advantageously ensure proper device function. Furthermore, applicants indicate that the mid-range operation flows naturally from the use of the bleed orifice; page 9, lines 1-4 of applicants' specification. Also, regarding applicants' argument that Lindberg's range is "significantly less precise" than the claims, the term "mid-range" is not defined with any precision in the specification.

With respect to applicant's argument (based upon *Antonie*) that the art must recognize the variable as result-effective, applicant's statement in the specification that some flow meters "have been found to be generally more accurate in the mid-range;" page 9, lines 6-8, is a showing that applicant recognizes that the art recognizes the variable as result-effective.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Cygan whose telephone number is (571) 272-2175. The examiner can normally be reached on 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Lefkowitz can be reached on 571-272-2180. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MICHAEL CYGAN, PH.D.
PRIMARY EXAMINER